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Soggetti	Renewable energy resources Energy systems Building construction Energy consumption Energy harvesting Sustainable architecture Renewable and Green Energy Energy Systems Building Physics, HVAC Energy Efficiency Energy Harvesting Sustainable Architecture/Green Buildings
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Solar energy resource and its global distribution -- Solar heating, cooling and power generation – current profiles and future potentials -- Heat pipe and loop heat pipe technologies and their applications in solar systems -- PCM and PCM slurries and their application in solar systems -- Modular solar elements for building integration -- Micro (mini) – channel panels and their applications in solar systems -- Solar desiccant and adsorption cooling/dehumidification technologies -- Solar ejector cooling technologies -- Heat pump technologies and their applications in solar systems -- Concentration and thermoelectric technologies for solar systems -- Solar systems for rural houses space

heating, hot water and power supply -- Solar systems for urban building applications – heating, cooling, hot water and power supply -- Solar systems design and energy performance assessment approaches -- Solar systems economic and environmental performance assessment -- Solar heating, cooling and projects - case studies.

Sommario/riassunto

This book, based on the research experience and outcomes of a group of international contributors, addresses a range of advanced energy efficiency technologies and their applications in solar heating, cooling and power generation, while also providing solutions for tackling recurring low efficiency problems in today's systems. It highlights the latest technologies and methods, which can significantly improve the performance of solar systems, enabling readers to design, construct and apply high-performance solar systems in or for their own projects. The contributors provide a systematic introduction to state-of-the-art energy efficiency technologies that demonstrates how to implement innovative solar systems. These technologies include: • heat pipes and loop heat pipes; • phase change materials (PCMs) and PCM slurries; • micro-channel panels; • desiccant/adsorption cycling; • ejector cooling and heat pumps; and • solar concentration and thermoelectric units. The book shows how innovative solar systems applicable to rural and urban buildings can be analysed and demonstrates the successful implementation of these advanced technologies. It delivers the design principles and associated energy performance assessment methods for a range of selected solar heating, cooling and power generation projects. This book offers a valuable source of information for final-year undergraduate students, as well as graduate students and academic lecturers, as it promotes the widespread deployment of advanced solar heating, cooling and power generation technologies applicable for buildings across the globe. The book is also a good point of reference for design engineers and energy consultants who wish to extend their knowledge of advanced technologies used to achieve energy efficiency. .
